ficult to take with dial calipers, undoubtedly resulting in the high values.

Secondary sexual variation.—Analysis of variance revealed that males were significantly different from females in five (greatest length of skull, condylobasal length, mastoid breadth, breadth of braincase, and length of maxillary toothrow) of the 12 measurements tested (Table 1). Females were larger than the males in all of these measurements. In the remaining seven, males averaged larger in two (length of tail vertebrae and length of ear) and females were larger in five (total length, length of hind foot, length of forearm, postorbital constriction, and breadth across upper molars).

Conclusions.—Of the 12 measurements analyzed, only length of tail exhibited enough individual variation to warrant its deletion in analysis of geographic or interspecific variation in the genus *Choeroniscus*. Also, because of the difficulty in consistently taking the measurement, we also suggest elimination of postorbital constriction.

Specimens of *Choeroniscus intermedius* were found to exhibit significant secondary sexual variation in five of the 12 measurements studied. Therefore, it is clear that males and females should be separated in analyses of variation within members of the genus. Females were found to be the larger in 10 of the 12 measurements—similar to the situation found in several other groups of bats (see for example, Jones and Schwartz, 1967; Jones *et al.*, 1971; Peterson, 1965).

Specimens examined. — TRINIDAD: Blanchisseuse, 5; Guayaguayare, 12; Las Cueves, 14; Maracas Valley, 1; San Rafael, 4.

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A NEW SPECIES OF *ELEUTHERODACTYLUS* (AMPHIBIA: LEPTODACTYLIDAE) FROM ANDEAN ECUADOR

Access to the Amazonian slopes of the Ecuadorian Andes has been difficult in the past except through the deep canyon of the Río Pastaza (Baños to Puyo), and this route traverses little of the altitudinal transect on the eastern face of the Cordillera Oriental. The building of the Texaco-Gulf transandean pipeline prompted the construction of a road along its course and field parties from the University of Kansas have worked the Amazonian slope portion of the transect as it was being developed. On one of his trips along this road, William E. Duellman secured two specimens of a moderate-sized frog beneath rocks in a stream. At first glance the frogs appeared to be a treefrog of the genus *Hyla*, but dissection of the digits and closer examination revealed them to represent a distinctive new species of *Eleutherodactylus*.

Eleutherodactylus pugnax, new species

Holotype.—University of Kansas Museum of Natural History (KU) 146466, an adult female collected at Salto de Agua, 2.5 km NNE Río Reventador, Napo Prov., Ecuador, 1660 m by W. E. Duellman, Bruce MacBryde, and John Simmons, 7 April 1972.

Topoparatype.—KU 146467, a male, collected syntopically.

Figure 1. Male paratype of *Eleutherodactylus pugnax*, new species. From a kodachrome by William E. Duellman.

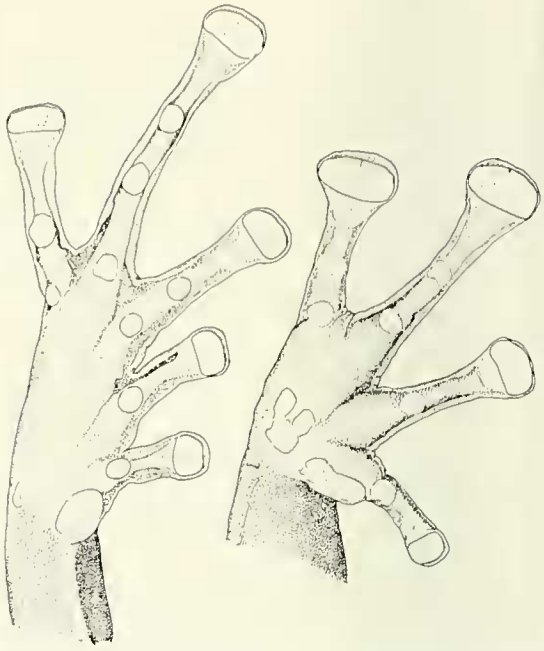

Figure 2. Left, foot of holotype of *Eleutherodactylus pugnax*. Right, hand of holotype of *Eleutherodactylus pugnax*.

Diagnosis.—A species of *Eleutherodactylus* unique in the following combination of characters: first finger shorter than second; all digits bearing broad discs; toes basally webbed with prominent lateral fringes; skin of venter coarsely areolate; ear absent (no tympanic annulus, cavum tympanicum, or columella); snout round in dorsal view, truncate in lateral profile, shorter than eye length; prevomerine dentigerous processes and teeth present.

Only three other species of *Eleutherodactylus* now known lack ears—*E. anotis* Walker and Test (Venezuela), *E. surdus* (Boulenger) (high Pacific slopes of Andean Ecuador), and an unnamed species from the paramos of southern Ecuador. None of these has toe webbing or the prominent lateral fringes of the toes seen in *E. pugnax*. All three also have longer snouts (eye length equal to or less than eye-nostril distance). The unnamed species is a small frog (adult females 20–21 mm SVL) with minute prevomerine processes and concealed prevomerine teeth.

Description.—Head as wide as body, wider than long; snout semicircular in dorsal outline, truncate in lateral profile (Fig. 1), short, eye length much greater than eye-nostril distance; upper jaw barely overhanging lower jaw; canthus rostralis round, concave; nostrils near tip of snout, protuberant, directed laterally; loreal region flat; lips not flared; eyelids narrow, their width about equal to interorbital distance; interorbital space flat, no frontoparietal ridges; frontoparietals complete, no fontanelle, not in contact with nasals; nasals narrowly separated; supratympanic fold thick, glandular; tympanum absent; tongue longer than wide, weakly notched posteriorly, posterior edge free; choanae round, slightly larger than a prevomerine dentigerous process, not concealed by palatal shelf of maxillae; prevomerine dentigerous processes round, median and posterior to choanae, bearing 3–4 teeth along the posterior border.

Skin of dorsum bearing flattened, ill-defined warts; flanks areolate; skin of upper eyelid covered with numerous wart-like ridges; skin of venter and about anus coarsely areolate; discoidal folds prominent; concealed surfaces of limbs smooth; upper surfaces of limbs smooth with scattered flattened warts; outer edge of forearm bearing a row of ulnar warts; three palmer tubercles, inner largest; numerous well-defined supernumerary palmer tubercles; subarticular tubercles round, non-conical, distal tubercles tend to be bifid; fingers bearing weak lateral fringes, lacking web (Fig. 2); all digits bearing discs which are wider than long; discs largest on fingers II, III, and IV; first finger shorter than second.

No tubercles on heel or outer edge of tarsus; inner edge of tarsus bearing a fold along its distal one-third; two metatarsal tubercles, outer flat, ill-defined, one-fifth to one-sixth size of elongate inner (twice as long as wide, not compressed); few supernumerary plantar tubercles; subarticular tubercles smaller than those of fingers, elongate, simple, non-conical; toes bearing discs that are smaller than those of fingers; toes with prominent lateral fringes (Fig.

2) and basal webbing; the webbing formula for the holotype (based on the formula given by Savage and Heyer, Beit. Neotropischen Fauna 5:111–131, 1968): I 2–2 II 2–3 III 2½–4 IV 3¾–2⅓ V; legs of moderate length, heel of adpressed hindlimb reaches to tip of snout; when legs are flexed at right angles to the sagittal line, heels touch.

The holotype is an adult female with convoluted oviducts and a few moderate-sized (2.0 mm in diameter) yellow eggs interspersed among many small (0.5–1.0 mm) white eggs. The paratype is an adult male with vocal slits and a sub-gular vocal sac; the testes are large and white and the thumbs are swollen at their bases. The measurements (in mm) are as follows; data for the holotype are given first, data for the paratype follow in parentheses: snout-vent length 30.8 (22.1), shank 17.0 (12.2), head width 12.2 (8.6), head length 9.7 (7.3), eyelid width 2.6 (1.7), interorbital distance 2.5 (2.2), eye length 4.2 (3.0), eye-nostril distance 2.8 (2.5).

In preservative, *E. pugnax* is brown with darker brown blotches, interorbital triangle, and limb bars. The limb bars are about as wide as the interspaces. Dark brown canthal and supratympanic stripes and labial bars are present. The posterior surfaces of the thighs are brown with cream flecks. The venter of the female is dirty cream with numerous brown spots; the lower surfaces of the hindlimbs are brown with cream reticulation. The venter of the male is creamy-white with a few brown flecks (primarily on the lower venter); the undersides of the thighs are heavily speckled with brown.

In life, *E. pugnax* was described as "Dorsal surfaces and flanks grayish-brown with dark brown markings. Venter gray with brown flecks. Iris reddish-brown." (W. E. Duellman field notes, 7 April 1972).

Etymology.—Latin, *pugnax*, meaning fighter: in loose reference to the collector, William E. Duellman.

Natural history.—The pronounced lateral fringing and basal webbing of the toes suggests that *E. pugnax* is a riparian species. The holotype and paratype were collected beneath rocks in a fast-moving stream in cloud forests by day. The male is reproductively active (swollen, non-spinous thumb; large testes) but the female probably is not.

Relationships.—Few mainland *Eleutherodactylus* species have toe webbing; those that do (*e.g.*, *E. anomalus*, *E. bufoniformis*, *E. fitzingeri*) are members of the *E. binotatus* group [first finger longer than second, skin of venter smooth, ear prominent (*i.e.*, tympanic annulus large and externally visible)] and frequently live near streams. The West Indian *Eleutherodactylus* with toe webbing and prominent fringes are likewise strongly riparian in habit (Schwartz, Stud. Fauna Curacao and other Carib. Islands 24:1–62; Shreve and Williams, in Williams, *et al.*, Bull. Mus. Comp. Zool. 129:291–342, 1963). I do not think that either of the more distinctive features of *E. pugnax* (carlessness, toe webbing) are reliable indicators of relationship.

Eleutherodactylus pugnax is a member of the Cochran and Goin's (Bull. United States Nat. Mus. (288):1–655, 1970) Group II which I prefer to call the *E. unistrigatus* group, defined by having a granulate or areolate skin on the venter and the first finger being shorter than the second. *Eleutherodactylus pugnax* has no apparent close relatives within this group.

William E. Duellman loaned the specimens, provided additional information about the locality and its habitat, and permitted me to use his kodachrome of the frog.

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A NEW SPECIES OF TREMATODE (TREMATODA: MONOGENEA) FROM THE GILLS OF *DIAPHUS WATASEI* JORDAN AND STARKS, 1904.

Through the courtesy of B. Nafpaktitis, Department of Biological Sciences, University of Southern California, some monogenetic trematodes from the gills of a myctophid fish, *Diaphus watasei* Jordan and Starks, 1904 (identified by Nafpaktitis) were obtained for study. The fish were collected between 400 and 450 fathoms off the southeast coast of Africa by the Anton Brunn International Indian Ocean Expedition. Two of eighteen fish had a total of five parasites that are described here as a new species of *Diclidophora* Diesing, 1850. They were stained with Mayer's paracarmine, cleared with methyl benzoate, and mounted in Canada balsam. Measurements are expressed in microns.

Diclidophora sprostonae, new species

Diagnosis: With the characters of the genus. Length 2198, 1092 wide. Opisthaptor attached to ventral side of body, with 8 short peduncles and clamps (two lost from best extended specimen) 770 long, 182–266 wide. Clamps with muscular pads, 140–160 long, 112–126 wide. Body tapers anteriorly. Oral cavity followed by pharynx 65 long, 44 wide. Esophagus 2–3 times length of pharynx. Intestinal crura confluent posteriorly with numerous diverticula directed peripherally and medially. A diverticulum extends into opisthaptor. Testes arranged in radiating cords, mainly postovarial between intestinal crura. Convoluted vas deferens extends anteriorly to ventral genital pore at mid-esophageal